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ABSTRACT

As part of litigation challenging the equity and adequacy of school funding in Alabama, educational resources and school conditions were examined in the highest and lowest funded school districts in the state. Identification of these districts revealed that all eight of the highest funded districts were urban systems, while all eight of the lowest funded districts were rural or county systems. Site visits to 45 schools in 15 of the above districts, interviews with principals, and a teacher survey produced completely consistent findings of clear disparities between rural and urban schools. Compared to urban schools, rural schools had less attractive physical plants and grounds, fewer educational resources in virtually all areas, fewer instructional offerings, and staffs that were more dispirited about their abilities to provide effective education under existing conditions. Particular educational and environmental disadvantages of rural schools included restricted opportunities for participating in outdoor athletics; discomforts caused by inefficient heating and cooling systems, old and dark school interiors, and dirty rest rooms lacking in basic supplies; cramped classrooms lacking sufficient textbooks and maps; and old and inadequate libraries and gymnasiums. In addition, teachers and principals reported staff and student involvement in fund raising, and the lack of funds for enrichment programs, subjects such as drama and foreign languages, professional development, and teacher compensation for extra work. Includes tables of statistical data. (SV)

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The Urban-Rural Funding Disparity

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The Urban-Rural Funding Disparity

Abstract

The relationship between school funding and student achievement has been debated since the Coleman report in the 1960s. The purpose of this presentation is to demonstrate that funding inequities exist between rural and urban school systems and those inequities are related to inequities in the quality of education for rural and urban children.

Until the 1960s the relationship between the level that schools were funded and student achievement was taken for granted. Results from the *Equality of Educational Opportunity* study (Coleman Report) challenged this view (Lockwood & McLean, in press). This relationship has been debated since that report. The Coleman Report concluded that school inputs other than student body composition explained virtually none of the variance in school achievement (Brookover). More recent research has provided support that there is a relationship between the level that a school is funded and the achievement of the students. These findings have made disparity of funding an issue of concern to teachers and parents. In fact, education equity litigation challenging the distribution of state education funding has been successful in at least six states: Alabama, Texas, Montana, Kentucky, New Jersey, and Tennessee. The purpose of this presentation is to demonstrate that funding inequities exist between rural and urban school systems and they are related to inequities in the quality of education for children in rural and urban schools.

Background

In the past few years, educational equity litigation challenging the distribution of state education financing has been successful in at least five states: Texas, Montana, Kentucky, New Jersey, and Tennessee (see reviews by Brannan & Minorini, 1991; Brown, 1991; Odden, 1992; Policy Information Center, 1991). In New Jersey and Kentucky especially, the courts were persuaded by abundant evidence of the failure of public education in the states' poorest communities. In a case in Maryland (*Hornbeck v. Somerset County Bd. of Educ.*, 1983), however, the court ruled that, despite disparities that may exist between districts, there is no requirement for fiscal equalization that goes beyond providing a basic

education. A fundamental issue in this decision was the lack of concrete evidence indicating if and how "disparity" translates into tangible educational impacts.

The above cases suggest inconsistencies and limitations in the ways that educational disparity has been researched in previous studies. First, such studies are usually conceived as "wealth-based" challenges to inequities between richer and poorer districts. The primary data presented to establish disparity are dispensation figures specifying per capita expenditures on various material and personnel resources by area or district. Lacking is information concerning the kinds and quality of resources provided in terms of curricula, after-school programs, parent involvement, special education, and other factors. Second, previous studies, with few exceptions (Mattson, Pace, & Picton, 1986), have relied on historical records (namely, state or district data bases) or subjective reports by school personnel (e.g., teachers, principals, superintendents) to support the case for disparity (e.g., Slavin, 1991). Although these data appear to provide valid indicators of nominal disparity, they do not reflect actual conditions of schools within the districts examined in terms of effective acquisitions and usage of resources. For example, it is certainly conceivable that a school receiving one-half the per capita funding of a similar school might create a comparable or even superior educational environment as reflected by the physical facility, instructional programs, and teacher quality. *Funding* disparities suggest but do not necessitate *educational* inequalities.

Since the Coleman Report in the 1960s, educational researchers have done little to challenge its primary finding, that school inputs other than student body composition have little or no relationship to school achievement (Brookover, 1982). From that time until the late 1980s, its result had little impact on education. Legal challenges to the equitability of the funding of education in the late 1980s and early 1990s promoted the defendants (usually states) to reassert the Coleman findings. In a 1989 paper, Hanushek, an economist, reviewed 37 research articles that included 187 analyses of the relationship between funding and educational outcomes and concluded that there was no meaningful relationship between educational funding and student achievement (Hanushek, 1989). Hanushek became the featured witness for the defense in many of these equity funding cases including the one in Alabama.

A number of recent studies have challenged those who say that funding level makes little difference and have shown both theoretically and empirically that funding level and student achievement are positively related. A reanalysis of Hanushek's data by Hedges, Laine, and Greenwald (1994) identified numerous deficiencies in the his findings. They concluded that "relying on the data most often used to deny that resources are related to achievement, we find that money *does* matter after all" (p. 13). Ferguson in 1991 concluded that his research "strongly supports the conventional wisdom that higher-quality schooling produces better reading skills among public school students and that when targeted and managed wisely, increased funding can improve the quality of public education" (p. 488). Wainer in 1993 pointed out numerous flaws in research that concluded money does not make a difference in student achievement. Lockwood and McLean (in press) suggested that the relationship between funding and student achievement may be curvilinear and a certain threshold of funding must be reached before it can have its full impact.

Thus, the arguments about school funding and educational achievement have come full circle. Beginning with a general assumption that increased funding would improve achievement, to the skepticism of the Coleman Report and the 20 years that followed, to the more recent round of research that have reestablished an empirical basis for such a relationship; study now centers on the nature of the relationship.

Method

The current study began as part of the Harper v. Hunt (1993) litigation in Alabama that challenged the equity and adequacy of school funding in Alabama. In fact, the purposes of the original study were:

1. Do funding disparities between school systems in Alabama translate into differential allocations of educational resources for schools?
2. To what extent do funding and/or resource disparities correlate with observed conditions at selected schools (climate, educational resources, teacher attitudes, instructional programs, etc.)?
3. Are results pertaining to the above questions consistent across multiple data sources? (Ross, Smith, Douzenis, McLean, & Trentham; in press).

The first step in the research process was the selection of the eight highest and eight lowest funded systems in the state. A striking result of this first step was that all eight of the highest funded schools systems in the state were city or urban systems and all eight of the lowest funded school systems in the state were county or rural systems. This result also made the study a comparison of rural and urban systems.

School System Sampling

On-site visits were planned to 48 schools in 16 school systems. The sample of school systems was selected as representing the eight highest and eight lowest systems in local revenue per average daily attendance (ADA), as reported by the state for 1989. Local revenue was used as the criterion due to perceived limitations of state and federal funding as meaningful indicators of between-system disparity. Specifically, state funding is distributed at a fairly constant level across systems, thus resulting in minimal variation. Federal funding is earmarked for compensatory and supplementary programs that are designed to address the special needs of systems that serve disadvantaged students. Such funding, aside from making up a relatively small proportion of a system's total revenue, is thus inversely related to system wealth. Local revenue, on the other hand, comprises approximately 40% of total revenue for wealthier systems and varies by $3,000 per ADA across systems, due mainly to the abilities of the local counties or cities to raise funds through property taxes and other means. As previously noted, the eight lowest funded systems were rural and the eight highest funded systems were urban.

Within each of the 16 systems, an elementary school, a middle school, and a high school were selected for visits and observations. For this selection, it was necessary to decide what criteria would be most appropriate for the purposes of the study. Given the small number of systems concerned, a random process was considered risky in the sense that selections might not be truly representative of typical schools in the low- and high-revenue strata. We therefore reasoned that using a correlate of school success, such as student achievement, in the selection would provide a basis for eliminating outlier schools. That is, a school that performed typically for a district would be unlikely to have unusual characteristics.

Two alternative strategies using standardized achievement scores (Alabama Basic Competency Test and Stanford Achievement Test, depending on grade) were suggested. The first strategy was regarded as the most valid from a research standpoint, the second most useful from a litigation perspective. Specifically, in the first approach, the median scoring school at each of the three grade levels would be selected. In the second approach, the highest scoring school at each level would be selected in the urban system schools, whereas the lowest scoring school at each level would be selected in rural system schools. The purpose of the latter approach would be to maximize the comparison of environmental conditions by contrasting ostensibly successful wealthy schools and unsuccessful poor schools. Since both approaches (median and maximum contrast) were judged to have merit in view of the study's objectives (research and trial), a combination strategy was adopted as a compromise. It involved using the maximum contrast selection for the four wealthiest and four poorest systems, and the median approach for the remaining four urban and four rural systems.

Using the above strategies, the sample of 48 schools was selected. Comparison of the median- and maximum-contrast approaches actually showed very little difference due to the fact that, in many of the systems, there was only one school at each level. School systems were contacted by a state education official to secure permissions for the site visits. All systems agreed to participate, with the exception of one urban system. Consequently, the sample consisted of 15 systems (7 urban and 8 rural) and 45 schools.

Instrumentation and Procedure

The purpose of the site visits was to document the types of facilities and the level of resources available for teaching and learning in the identified schools. On the basis of previous studies of facilities/resources, a number of pertinent site characteristics were identified and incorporated into the data collection procedures. Other variables were also included on the basis of the experiences and expertise of the research team. The resulting data collection procedures included an observational survey of facilities and resources, an interview of the principal of each school, and a teacher survey.

The observational study (School Environment Study) required that pairs of trained observers make a systematic tour of the school facility and document conditions relative to safety and security, grounds and playing fields, general exterior characteristics (buildings, walks, drives, etc.), interior building conditions (offices, classrooms, labs, rest rooms, cafeteria, library, gymnasium, lighting, etc.), equipment (desks, media, physical education, computers, etc.), and other resources (books, science materials, etc.). Altogether, 236 variables were assessed pertaining to these categories. Some involved counting resources and recording the total (e.g., number of swings, number of football fields), others involved making qualitative judgments of the condition or sufficiency of resources using 3-point or 5-point scales (e.g., adequacy of lighting, condition of windows, appearance of the teachers' room, etc.), and others involved indicating the presence or absence of a resource by checking "yes" or "no" (e.g., whether or not there was soccer field, a swimming pool, etc.). Space was also provided for observers to take notes of their impressions.

Twenty randomly selected teachers at each school (or all teachers if there were 20 or fewer at a school) were asked to respond confidentially to a survey addressing such topics as the adequacy of resources and supplies for teaching and learning, quality of facilities, use of time required for non-instructional activities, qualifications of teachers, and availability of aides.

A third instrument provided questions for a 15-20 minute interview with the principal of the school. Questions concerned class sizes, availability of qualified teachers and substitutes, and numbers and types of specialized classes (e.g., drama, psychology, foreign language) and extra-curricular activities.

Observers and Training Procedures

Observers were recruited from two sites at which research team members were available for supervision--Auburn University and The University of Alabama. All (n = 17) were either education graduate students or junior education faculty selected from a pool of applicants. Selection criteria included knowledge and experience in data collection and research, availability during designated periods of time, quality of work in other areas, and perceived ability to work well with school personnel.

Prior to the collection of data for the actual study, procedures and instruments were field-tested by two of the team members in a sample of public schools in Memphis, Tennessee. The field test revealed a high degree of consistency in the observer ratings on nearly all variables. Revisions to clarify the operationalization of certain variables and to facilitate the recording of data were also made. On the basis of the findings, a final version of the instrument, final training procedures, and an observer handbook were developed.

Two training sessions, one at each Alabama university site, were held for the observers. All training was conducted by one of the researchers who participated in the Memphis field test. During training, participants were guided through the materials and procedures that would be used for data collection, were given specific definitions and examples, and participated in discussions and question-and-answer activities regarding the procedures.

Data Collection Activities and Reliability Analyses

Arrangements for visits to the selected systems were made by research team members working directly with the system superintendent. Each superintendent notified the principals in the selected schools that members of the research team would be contacting them directly to make arrangements for specific dates and times for site visits.

Observers were scheduled in pairs to visit each school. The rationale for this procedure was that (a) two individuals would feel more confident than would one about carrying out the data collection procedures, asking questions, and exploring the school; (b) reliability checks could be conducted by determining the consistency of independently made observations by pair members; (c) where questions arose about particular variables, the two individuals could discuss them and identify a mutually agreeable response; and (d) having two observers would decrease the time needed to complete an observation at a given school.

Before visiting a school, the observation team contacted the building principal to make specific arrangements for the visit and the distribution and collection of the teacher surveys. Once on site, the team

would first interview the principal and any other appropriate personnel (e.g., maintenance staff, media specialist, guidance counselor). The team members then toured the school facility, completed the observation forms, and collected the teacher surveys.

As noted above, each observer was required to participate in a reliability check. This involved having each member of the pair complete a separate observation form if either had not been checked previously. Once the observation was completed, the two observers were to compare their responses, without changing any, and then record their consensual response on a third form. This consensual form was then used in the data analysis. The original forms were spot checked by the first author to determine whether there was reasonable consistency (there was in all cases), and were later used in a formal inter-observer reliability analysis, the results of which are reported in a later section.

Cross-Validation Component

An additional aspect of the study was followup on-site visits by three of the principal investigators. The purpose of the followup was twofold: (a) to cross-validate information collected by the observer teams, and (b) to observe exemplary and extreme contexts firsthand. Due to time constraints, 8 schools (6 rural and 2 urban) were visited. The selection of schools was based primarily on two factors: (a) geographical location to permit the largest number of schools to be visited within the available two-day time period; and (b) schools likely to represent "clear cases" of disparity in resources and conditions. Thus, for this component, the interest was more to observe firsthand the extent of likely disparities than to conduct a controlled comparison of norms in rural and urban schools. The investigators toured each school for approximately one hour, talked with principals and/or other personnel, made notes, and took photographs.

Results

School Environment Instrument

An inter-observer reliability analysis was conducted in three ways depending upon the type of data collected. For data involving dichotomous choices (yes/no) or 3-point rating scales, the percentage of times the two observers independently made the identical response was computed. For dichotomous responses,

the average was 97%, and for 3-point ratings the average was 93%. For 5-point rating scales, Pearson correlations were computed for the pair ratings. The correlation coefficients ranged from .80 to .97 except for one anomaly. These results indicate very high degrees of consistency in observer responses.

A total of 236 variables from the School Environment Instrument were analyzed. Descriptive analyses involved constructing summary tables using a 2 groups (rural vs. urban) x 3 education levels (elementary, middle, secondary) format. For interval (and ordinal rating scales of 3 or more points), group-level means were displayed; for dichotomous variables, the percentages of "yes" responses were displayed. For variables representing counts of the quantity of resources (e.g., number of library books), adjustments were made for school size by dividing the total quantity by the average daily attendance (ADA) for the school. This adjustment increased the rural school means relative to the urban means due to the smaller ADAs for the former.

For directly comparing rural and urban schools, significance tests, consisting of chi-square tests of independence and analysis of variance, were conducted on the overall (all education levels combined) data for each variable. Given the large number of separate analyses, and the concomitant inflation of the family-wise Type I error rate, these results were used mainly for identifying patterns or trends rather than for proving particular variables to be valid discriminators. Space limitations preclude reporting the results for each variable. Rather, a summary of *interval* (rating scale) variables that showed significant group differences is provided in Table 1. Table 2 presents a comparable listing for nominal variables. Each table also shows variables associated with rural-urban effects that were less than .05. When viewed cumulatively, these directional findings reflect patterns that were conveyed as evidence at the trial.

**** See Tables 1 and 2. ****

Altogether, for the 236 comparisons, 204 (84%) directionally favored the urban schools, 24 (10%) favored the rural schools, and 8 (6%) were equal. A total of 113 comparisons (48%) yielded effects with probabilities less than .05, with all but one of these favoring the urban group.

As can be seen from the listings in Tables 1 and 2, the urban schools had better maintained and more attractive school grounds, better athletic/playground facilities, brighter lighting in classrooms and hallways, cleaner and better equipped rest rooms, better and more physical education equipment, more attractive and spacious libraries, more media equipment, a greater quantity and variety of special classrooms (e.g., music, art, band), and better equipped and more attractive classrooms. The only variable on which the rural schools surpassed the urban schools was the quantity of wall air-conditioning units. (This outcome, however, represents an unfavorable finding for the rural schools due to such units being noisy and outdated relative to the central air conditioning systems installed in 100% of the urban schools.)

To provide the most liberal picture of where rural schools might have had advantages, Table 3 lists the variables on which the rural means were directionally higher than the urban means. It should be noted that many of these variables represent tabulations of the quantity of resources per ADA. Interpretations of how many of these comparisons are biased by the smaller ADA at the rural schools are given in the Discussion section.

**** See Table 3. ****

Teacher Survey

A total of 421 rural teachers and 404 urban teachers completed the survey, a response rate exceeding 95% in both cases. Of the 16 items on which comparisons were made, significant group differences ($p < .05$) were obtained on 11 (69%), with all (100%) directionally favoring the urban schools. The significant variables are summarized in Table 4. Among the advantages indicated for the urban schools are teacher perceptions of more adequate resources, better room conditions, more planning time, fewer demands for fund raising activities, and increased support for travel funds and teacher aides.

**** See Table 4. ****

Principal Interview

The principal interview yielded data on 22 variables. Of these, 20 (91%) directionally favored the urban schools. The exceptions were that rural schools were more likely to have Channel One television (50% vs. 19%) and less likely to have combined grades (13% vs. 24%). Significant group differences were obtained on 9 (41%) of the variables (see Table 4). One variable was Channel One availability, while the others all favored the urban schools, including smaller class size, number of teacher job applications, number of special classes (e.g., vocal music, foreign language, psychology), and the number of enrichment programs.

Pictorial Evidence

As noted, the principal investigators took photographs of the schools during their followup visits. While the main purposes of these visits were to cross-validate information collected by the observer teams and to observe exemplary and extreme contexts firsthand, photographs helped them to document and remember what was observed. These photographs became a centerpiece of the plaintiffs' court presentation to graphically demonstrate the discrepancies. Table 5 is a list of titles of photograph taken by the first author of the present paper. These photographs are to be presented as slides in the paper presentation session.

* * * * See Table 5. * * * *

Discussion

The discussion of results will address two major areas: (a) findings from the research study, and (b) the implications for rural education.

The Research Findings

Findings from all data sources were consistent in showing clear disparities between the rural and urban schools. In fact, even though all four sources (environment study, teacher survey, principal interview, and visitation followup) directly examined many of the same or related variables, in no instance was a contradictory finding noted. Rural schools were found to have less attractive physical

plants and grounds, fewer educational resources in virtually all areas, fewer instructional offerings, and generally more dispirited staffs regarding their abilities to educate children effectively under existing conditions. The principal investigators found that, in every case (n = 45), they could read the observers' field notes "in the blind" and correctly guess from the descriptions whether the school was in the urban or rural group.

Many of the discriminating variables listed in Tables 1 and 2 seem educationally important in the sense of giving children attending rural schools disadvantages relative to their urban counterparts. Examples included:

1. restricted opportunities for participating in outdoor athletics such as soccer, basketball, and tennis.

2. discomfort and distractions caused by noisy, antiquated, and inefficient heating and cooling equipment.

3. the negative ambiance of dark, old, and dirty school interiors.

4. the health risks and discomforts for children of having to use dirty, smelly rest rooms that often lacked toilet paper, soap, and towels. Where toilet paper was unavailable (in over half the rest rooms), the students were forced to bring their own or obtain it from a janitor.

5. classrooms that lacked space, have unattractive and old furniture, and lack learning resources such as textbooks for every child, globes, maps, encyclopedias, and projection screens.

6. libraries that were old, unattractive, poorly stocked, and inadequately staffed.

7. old (or no) gymnasiums with limited physical education equipment, deteriorating floors, and limited facilities and equipment.

Added to this list are the teacher and principal reports of staff and student involvement in fund-raising, lack of enrichment programs and special support subjects such as drama and foreign language, large class sizes, and limited funds to support professional development or to provide compensation for

extra work. Clearly, teachers and staff at rural schools work under conditions that are much more stressful and frustrating than is the case for their counterparts at urban schools.

At first glance, the results in Table 3 may appear to suggest advantages for the rural schools on a fairly large group of variables. Consideration of the meaning of those findings, however, suggests otherwise. First, the only statistically significant effect showed a greater use in rural of *wall* air-conditioning units, a negative condition compared with the newer, quieter, and better performing central units housed in all urban schools.

Second, many of the directional advantages for the rural were tabulations of the quantity of individual resources adjusted by ADA. Since ADA was lower at the rural schools, this adjustment inflated the rural mean for resources whose quantity would normally be invariant or insensitive to school size. For example, larger and smaller schools might both have one gym, similar weekly periodical subscriptions, and the same number of copiers in administrative offices. Thus, it seems of questionable importance that rural schools had a greater ADA-adjusted quantity of seats in the library, weekly subscriptions, full gyms, copiers in offices and teachers' rooms, and auditorium seats.

Third, the greater quantity of computer resources in rural schools is attributable to Chapter 1 funding for *supplementary* educational support. Since there was no reasonable way for observers to differentiate between Chapter 1 computers and computers acquired through the regular school budget, they were told to make an overall count of all computers and labs seen at the school. Even with the Chapter 1 acquisitions and the ADA adjustment, the differences between school type were relatively small and nonsignificant.

Fourth, the rural advantages in three science lab resources (electricity, sinks, gas jets) are attributable to several of the urban (but none of the rural) *elementary* schools having science labs which were not so equipped, presumably for safety reasons. When the elementary schools are not included in the urban averages, the advantages for the rural schools are eliminated.

Fifth, the greater number of library holdings by the rural schools seems attributable to two factors. One is the ADA adjustment noted above. The second is that, on the average, the rural schools were 11 years older than the urban schools, giving them considerably more time to acquire books. Not surprisingly, however, the books in the rural schools were rated as older and in poorer condition than those at the urban schools.

Sixth, the greater quantity of portable classrooms at the urban schools reflects not only the ADA-adjustment bias, but temporary conditions due to the rapid growth of schools in wealthier communities and new construction. These portable units tended to be new and in excellent condition compared to the older, seemingly permanent units at the rural schools.

Seventh, the principal survey revealed a greater number of combined-grade classrooms at the urban schools. As with the portable classrooms, different causes for these conditions seem to prevail at the urban and rural schools. For urban schools, such classes appear to be mainly a product of enrichment programs where younger middle school and high school students take classes, such as algebra and physics, with older students. At the rural schools, the main reason for combined grades appeared to be lack of classroom space and/or teaching staff.

Finally, the principal survey also indicated that significantly more rural schools than urban schools had Channel One television. This advantage seems largely due to the rural schools' greater interest in acquiring the free television equipment that Whittle Communications' Educational Network provides to Channel One sites. Based on recent evaluation research by Johnston and Brzezinski (1992), the educational benefits of Channel One seem questionable.

Implications for Rural Education

The above research results provided what seemed to be compelling evidence of significant disparities in the educational opportunities available to children in urban and rural schools in Alabama. The major implication is that disparities between high-funded and low-funded school systems in Alabama translates into disparities between urban and rural schools. While this study did not provide

evidence, it is likely that a similar result could be observed in other states. The urban-rural disparity question should be addressed as part of these studies and possibly, as part of the litigation.

Conclusion

The basic result of this study is clear. That is, the highest funded school systems in Alabama are urban and the lowest funded school systems are rural. Rural educators need to be aware of this for several reasons. One is that it provides them with an argument to use with politicians when funding battles over funding are waged. A possibly more important reason is that rural educators may wish to become more involved in the recent wave of litigation over funding equity. These cases have been decided overwhelmingly in favor of the plaintiffs. In some cases (e.g., Kentucky), they have resulted in the reinvention of the education system. The primary point becomes whether or not rural children should be penalized for living in a school district that has a modest tax base. The Constitution gives responsibility for education to the state, not to individual school districts.

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Table 1

Scaled Environment Variables Associated with Significant Rural-Urban Differences

Variable	School System Type		t
	Rural	Urban	
Exterior Conditions			
School Grounds			
Grounds maintained[a]	2.38	3.38	-3.75***
	.92	*.86*	
Grounds clean[a]	2.78	3.43	-2.49*
	1.00	*.68*	
Safety			
Safety threats[a]	2.88	1.62	4.08***
	1.23	*.74*	
Safe from traffic[a]	3.00	3.62	-2.30*
	.88	*.92*	
Walkways & driveways			
Walkways flood[c]	1.77	1.25	2.71**
	.69	*.55*	
Walkway condition[a]	2.45	3.52	-4.06***
	.93	*.81*	
No. parking spaces[d]	155.9	292.60	-2.06*
	118.3	*297.7*	
Parking lot condition[a]	2.54	3.38	-3.55***
	.83	*.74*	
Driveway condition[a]	2.75	3.43	-3.36**
	.79	*.51*	

Variable	School System Type		t
	Rural	Urban	
Exterior building conditions			
Age of school bldg. (in years)	36.75	26.05	2.27*
	18.96	*11.13*	
Bldg. attractiveness[a]	2.25	3.62	4.19***
	1.22	*.92*	
Windows clean[a]	2.50	3.19	-2.55*
	.98	*.81*	
Window condition[a]	2.67	3.62	-3.57***
	.82	*.97*	
Broken windows[b]	1.57	1.15	3.04**
	.51	*.37*	
Interior Conditions			
General			
Floor condition[a]	2.21	3.81	-5.61***
	1.02	*.87*	
Fountains appearance[a]	2.67	3.43	-3.03**
	.87	*.81*	
Fountains condition[c]	2.17	2.76	-2.72**
	.76	*.49*	
Ceilings appearance[a]	2.58	3.57	-3.57***
	.83	*1.03*	
Lighting			
Qual./hall lighting[c]	1.83	2.29	-2.91**
	.56	*.46*	
Qual./classroom lighting[c]	2.08	2.33	-2.15*
	.28	*.48*	

Variable	School System Type		t
	Rural	Urban	
Health Facilities			
First aid supplies[c]	1.25	1.85	-3.56***
	.44	*.67*	
Lunchroom			
Attractiveness[a]	2.96	3.48	-2.31*
	.81	*.68*	
Cleanliness[a]	3.08	3.62	-2.36*
	.83	*.67*	
Rest Room Conditions			
Overall condition[a]	1.92	3.33	-5.15***
	1.06	*.73*	
Sanitary napkins[a]	1.00	1.95	-3.19**
	.00	*1.47*	
Toilet paper available[a]	3.00	4.29	-3.41**
	1.53	*.85*	
Toilet seats[a]	4.63	4.95	-2.03*
	.71	*.22*	
Soap available[a]	1.33	3.33	-5.40***
	.92	*1.53*	
Exhaust fans working[c]	1.25	1.89	-3.36**
	.53	*.88*	
Odor level[c]	2.04	1.48	2.34*
	.69	*.47*	
Towel holders[a]	2.29	3.48	-2.60*
	1.40	*1.66*	
Towels available[a]	1.25	3.29	-4.74***
	.90	*1.87*	

Variable	School System Type		t
	Rural	Urban	
Lighting quality[c]	1.63	2.48	-3.91***
	.49	*.42*	
Rest room: Overall quality[a]	1.83	3.29	-6.06***
	.82	*.78*	
Rest room: Appearance[a]	1.75	3.24	-6.14***
	.85	*.77*	
Playground/Athletic Fields			
Elementary only			
Age of equipment[c]	1.55	2.33	-2.31*
	.69	*.52*	
Condition of equipment[a]	1.90	3.67	-5.13***
	1.30	*.82*	
No. Sandboxes[d]	0.00	3.40	-2.26*
	0.00	*4.30*	
All levels			
Basketball courts - condition[a]	1.85	3.09	-2.42*
	1.46	*1.14*	
Spectator stands - condition[a]	2.55	3.45	-2.43*
	.82	*.93*	
Baseball fields - condition[a]	2.00	3.19	-2.80**
	.93	*1.38*	
No. Tennis courts[d]	.20	2.20	-3.28**
	.90	*2.80*	
No. Player benches[d]	.60	3.00	-2.03*
	1.50	*5.40*	
Gymnasium			
Girls' Locker room - attrct.[a]	1.88	3.44	-3.84***
	1.26	*1.03*	

Variable	School System Type		t
	Rural	Urban	
Boys' Locker room - attrct.[a]	1.53	3.20	-5.00***
	1.01	*.86*	
No. Boys' lockers[d]	114.00	316.30	-2.33*
	250.80	*226.50*	
P.E. equip - quantity[a]	1.96	3.76	-6.36***
	.95	*.94*	
P.E. equip. - quality[a]	1.96	3.81	-6.25***
	.86	*1.12*	
Gym - condition[a]	2.18	3.61	-3.72***
	1.30	*1.09*	
Gym - attractiveness[a]	2.09	3.61	-4.44***
	1.19	*.92*	
Library - Media Center			
Library			
Attractiveness[a]	2.67	3.76	-3.75***
	1.00	*.94*	
Spaciousness[a]	2.63	3.86	-3.51**
	.97	*1.01*	
Cleanliness[a]	2.96	3.86	-3.51**
	.81	*.91*	
Media Center			
No. VCR players[d]	7.20	14.40	-3.19**
	6.60	*8.60*	
No. VCR cameras[d]	.90	1.80	-2.28*
	1.20	*1.40*	
No. Carousel projectors[d]	2.30	5.90	-2.53*
	5.30	*3.80*	

Variable	School System Type		t
	Rural	Urban	
Classrooms/Offices			
Administrative Offices			
No. Desk computers[d]	2.40	5.80	-3.62***
	3.00	*3.20*	
No. Phones[d]	6.80	10.60	-2.55***
	3.60	*6.20*	
Attractiveness[a]	2.33	3.90	-5.66***
	.96	*.85*	
Science Labs			
No. Science labs[d]	1.20	2.50	-2.06*
	1.40	*2.50*	
Quant. science equip.[a]	1.85	3.62	-4.27***
	.80	*1.26*	
Science equip. - qual.[a]	2.15	3.54	-3.11**
	.98	*1.27*	
Teachers' lounge			
No. chairs[d]	10.10	15.60	-2.42*
	7.00	*7.00*	
Attractiveness[a]	2.13	3.62	-5.36***
	.72	*.92*	
Auditorium			
Attractiveness[a]	2.30	3.67	-3.79***
	1.11	*1.19*	
Regular classrooms			
Attractiveness[a]	2.42	3.48	-4.04***
	.93	*.81*	
Desks - condition[a]	2.71	3.76	-4.17***

Variable	School System Type		t
	Rural	Urban	
	.86	*.83*	
Lockers/cubbies[c]	1.26	1.60	-2.02*
	.45	*.82*	
A/V screen[c]	1.92	2.57	-3.14**
	.65	*.51*	
Globe[c]	2.00	2.43	-2.42*
	.42	*.47*	
Map[c]	2.00	2.38	-3.76***
	.00	*.50*	
Locking cabinets[c]	2.08	2.38	-2.59**
	.72	*.59*	
Wall clock[c]	2.25	2.57	-2.07*
	.53	*.51*	
Adequate shelf space[a]	2.04	2.71	-2.19*
	1.00	*1.06*	
Encyclopedias[c]	1.46	1.81	-2.12*
	.51	*.60*	
File cabinets[c]	2.33	2.76	-2.59*
	.64	*.44*	
Textbooks - condition[a]	2.46	3.43	-3.95***
	.66	*.98*	
Textbooks - availb.[c]	2.58	3.00	-2.92**
	.50	*.32*	
Teacher desk - cond.[a]	2.13	3.14	-4.45***
	.80	*.73*	

Note: *p < .05 **p < .01 ***p < .001. Data are taken from Ross, Smith, Douzenis, McLean, & Trentham (in press).
[a]5-point scale. [b]4-point scale. [c]3-point scale. [d]Per 1,000 students (average daily attendance). Rural schools: n = 24. Urban schools: n = 21.

Table 2

Nominal Environment Variables Associated with Significant Rural-Urban Differences: Percentage of Schools with Selected Features by School System Type

Variable	School System Type		χ^2
	Rural	Urban	
Exterior Conditions			
Playground/Athletic Fields			
Asphalt play surf.	4.20	45.0	10.36**
Separate soccer field	4.3	30.0	5.17*
Running track	0.0	65.0	21.43***
Walkways/Driveways			
Crossing guard	12.5	63.2	11.98***
Entr./Exit signs	34.8	85.7	11.78***
Auto drop-off	70.8	95.2	4.56*
Interior Conditions			
General			
Student lockers	66.7	81.0	4.56*
Heating/cooling			
Central air	20.8	100.0	28.77***
Wall units (A/C)	91.3	30.0	17.21***
Communications			
PA system	83.3	100.0	3.84*
Student public phone	29.2	61.9	4.86*
Faculty phone	25.0	90.5	19.45***
Health facilities			
Bed available	8.3	42.9	7.23**
Library-Media Center			
A/V Production	16.7	50.0	5.59*

Variable	School System Type		χ^2
	Rural	Urban	
	Gymnasium		
Soap/Boys' lockerroom	0.0	40.0	7.94**
Football equipment	87.5	100.0	7.25**
Tennis equipment	20.8	76.2	13.79***
Gymnastics equipment	29.2	71.4	8.00**
Soccer equipment	62.5	95.2	6.95**
	Classrooms/Offices		
Administrative offices			
FAX machine	0.0	28.6	7.91**
Teachers' lounge			
Telephone	5.9	61.9	12.67***
Regular classrooms			
Exposed pipes	45.8	9.5	7.19**
Special classrooms			
Music			
Music room	20.8	90.5	21.83***
Band			
Band room	43.5	75.0	4.37*
Music stands	71.4	100.0	5.27*
Other special rooms			
Foreign language lab.	4.3	28.6	4.81*
Art room	0.0	100.0	44.00***
Home economics	54.2	61.9	12.67***
Auditorium			
Sound system	45.8	85.0	7.23**
Working microphone	58.3	90.0	5.52*
Stage lights	43.5	75.0	6.59*

Variable	School System Type		χ^2
	Rural	Urban	
General			
Student bookstore	4.8	40.0	7.42**

Note: *p < .05, **p < .01, ***p < .001. Rural schools: n = 24. Urban schools: n = 21. Data are taken from Ross, Smith, Douzenis, McLean, & Trentham (in press).

Table 3

School Environment Variables Showing Directional Advantages for Rural Schools over Urban Schools

Variable	School System Type		t
	Rural	Urban	
Portable classrooms[a]	4.70 *13.0*	5.50 *9.0*	-0.23
No. Apple micro-comp.[a] in library-media center	3.3 *6.1*	1.7 *2.7*	0.93
No. spectator stands[a]	2.8 *4.2*	2.0 *2.0*	0.71
No. IBM microcomp.[a] in library-media ctr.	7.5 *26.9*	3.4 *3.8*	0.63
No. lunchroom seats[a]	469.0 *236.0*	400.2 *177.3*	1.08
Lunchroom condition[b]	3.42 *.78*	3.33 *.66*	0.39
No. full gyms[a]	1.9 *1.5*	1.60 *1.1*	0.67
No. boys' toilets	4.25 *2.29*	3.65 *2.46*	0.84
No. girls' toilets	5.21 *2.11*	5.19 *1.86*	0.03
No. library seats[a]	111.4 *81.8*	97.8 *39.8*	0.69
No. library holdings[a]	17583 *16626*	16832 *6070*	0.69
No. weekly subscript.[a]	6.5 *7.5*	5.7 *6.7*	0.39
No. copiers/admn. off[a]	3.4 *1.8*	2.7 *2.2*	1.32
Variable	Low	High	χ^2
Shop room	54.2	38.1	1.16

Copier in teach. room	56.3	38.1	1.21
Wall unit A/C	91.3	30.0	17.21***
Science lab gas jets	67.2	64.3	0.07
Plygrnd.-prot. mats	12.5	0.0	0.81
Elect. in science lab	100.0	92.3	1.04
Science lab sinks	100.0	92.9	0.96

Note: *p < .05, **p < .01, ***p < .001. Variables in the left column and top portion of right column are interval/ratio variables. Column entries are rural-urban means. Variables in the right column below the header are nominal variables; column entries are percentages of schools or rooms within schools for which the items were determined to be present. Data are taken from Ross, Smith, Douzenis, McLean, & Trentham (in press).

[a]Per 1000 students (average daily attendance). [b]5-point scale. Rural schools: n = 24. Urban schools: n = 21.

Table 4

Teacher Survey and Principal Interview Variables Showing Statistically Significant Rural-Urban Differences

Variable	School System Type		t
	Rural	Urban	
Teacher Survey			
Adequacy of resources	2.41 *0.86*	1.68 *0.67*	13.49***
Classroom cool in hot weather	2.21 *1.14*	2.41 *1.24*	-2.36**
AC noise disruptive	2.65 *1.30*	2.43 *1.39*	2.43**
Teacher--fund-raising	2.27 *0.62*	1.92 *0.73*	7.38***
Student--fund-raising	2.35 *0.62*	2.17 *0.72*	4.04***
Avg. planning time	51.01 *17.45*	58.81 *23.89*	-5.24***
Extra pay--E/C Acts.	2.88 *0.37*	2.29 *0.80*	13.27***
Extra pay--intramurals	2.68 *0.64*	2.24 *0.90*	7.33***
Teach out of concentration	2.78 *0.43*	2.86 *0.38*	-2.59*

Variable	School System Type		χ^2
	Rural	Urban	
Teacher Survey (continued)			
Participate in F/R	67.6	42.4	51.90***
Travel funds avail.	22.5	81.6	272.01***
Teachers' aide (FT)	3.6	6.7	7.43**
Principal Survey			
Enrichment programs	50.0	95.2	10.98***
Channel One	50.0	19.0	4.68*

Note: *p < .01, **p < .05, ***p < .001. Values in left column represent means and standard deviations for rural and urban schools; values in right column represent percentage responding "Yes." Rural teachers: n = 421. Urban teachers: n = 404. Rural principals: n = 24. Urban principals: n = 21. Data are taken from Ross, Smith, Douzenis, McLean, & Trentham (in press).

Table 5

Titles of Photographs Used in Presentation

1. Fort Deposit Elementary School, Lowndes County

2. Portable gymnasium, no covered walkways

3. Holes in floor

4. Holes in exterior of portable classroom

5. Inside portable EMR classroom, 16 students, 1 teacher, no aide

6. Pine Hill Elementary School, Wilcox County

7. No sidewalks, some gravel, little grass

8. Kindergarten portable, note entrance to building on right

9. Closeup of peeling paint

10. Entrance to kindergarten portable, note nails in handrail

11. Closeup of nails

12. Exterior of building, note erosion

13. Trailer used as band room

14. Another view of band trailer with coal pile in foreground

15. Science classroom for eighth graders, note lack of equipment

16. Broken window in door to main building

17. Broken window to main entrance, smell of urine prevalent in halls

18. Alberta Elementary School, Wilcox County

19. Library/media center

20. Encyclopedia, note 1975 date (latest version observed)

21 Classroom, little storage space

22. Portable restroom

23. Inside of restroom

24. School playground, note swingset without swings

25. Edgewood Elementary, Homewood City

26. Exterior view

27. Another exterior view

28. Entrance to school

29. Writing-to-Read Lab entrance, note typical door sign

30. Inside Writing-to-Read Lab

31. Inside Writing-to-Read Lab

32. Doors and water fountains

33. Typical classroom, large, well-equipped

34. Entrance to gymnasium

35. Inside gymnasium

36. Stage in gymnasium

37. Well-equipped playground

38. Elegant Restroom door sign

39. Bibb County High School, Bibb County

40. Outside view, note peeling paint

41. Uncovered sidewalks and erosion

42. Hallway with water stains on ceiling

43. Closeup of water stains

44. Bibb County High Gymnasium

45. Leaking pipe

46. Bucket to catch water from leak

47. Boys shower room in gymnasium

48. Restroom in gymnasium

49. Stage in gymnasium littered with old dirty clothes and paper

50. Outside gymnasium, note bent baskets and lack of nets

51. Well worn floors in gymnasium

52. Hole in classroom wall in gymnasium

53. Water stained walls in main building

54. Mountain Brook High School, Mountain Brook City

55. Artwork in front of school

56. Closeup of artwork

57. Plaque in Fine Arts Center

58. Outside of Fine Arts Center

59. Inside of Fine Arts Center

60. Inside library

61. Inside library

62. Typical classroom

63. Inside gymnasium

64. Inside gymnasium

65. Track

66. Track

67 Track

68. Gymnastics facility available to students

69. Soccer field

70. Baseball complex

71. Baseball field